H 1003

I.

Bay-Delta Airport Electric Vehicle Education Project

July 2nd, 1998

Applicant: **Alameda Bureau of Electricity**
2000 Grand Street
Alameda, CA 94501

Telephone number: 510-748-3944
Fax number: 510-748-3956

This education project requests **$100,000 over 2 years.**

☐ EDUCATION

☐ LANDSCAPE

☐ Winter-run
CHINOOK SALMON
☐ Spring-run

☐ LOCAL GOVERNMENT

☐ EDUCATION

Applicant Jim Baak
Alameda Bureau of Electricity

I-012351

II. EXECUTIVE SUMMARY

The **Bay-Delta Airport Electric Vehicle Education Project** is being applied for by the **City of Alameda, Bureau of Electricity,** with the support of other agencies.

The projects mission is to first educate the public about the environmental advantages of Bay-Delta Airports & Air Bases utilization of clean, *no-tailpipe, no-liquids, no-noise*, electric vehicles. Our public outreach program includes airport handouts and international exhibitions, where the opportunities to educate millions of our public are the most likely.

The two year program is divided in two phases and it's end result can positively impact the health of the Bay-Delta ecosystem by improving pollution at the Bay-Delta airports of Redding, Red Bluff, Chico, Yuba City, McClellan AFB, Sacramento International, Alameda restricted-use, San Francisco International, Oakland , San Jose, Stockton, Modesto & Fresno. Both phases include full public education programs expected to reach over 2,000,000 people.

The six (6) airport vehicle pollution problems; (a) gasoline/diesel leakage, (b) MTBE's, (c) radiator coolant, (d) oil and fuel filters (e) fertilizer reduction and (f) air & noise pollution are greatly minimized by the use of the airport electric vehicles. The reason, **the electric vehicles that can be utilized at 100's of Bay-Delta airport gates need no gasoline, diesel, MTBE's, coolants, oil, or filters, and this equipment is quiet, with no tail-pipes.**

Potential Airport Electric Vehicle's		
AIRSIDE:		
TARMAC:	Baggage Cart Tow	Lt Aircraft Tow-Pull back
	HD Aircraft Tow-Pull back	Movable Staircase
	Baggage Conveyer	Lav Cart
	Maintenance Flatbed Truck	Sweeper-Scrubber
	Tarmac Delivery Truck	Food-Service Truck
OPERATION:	Pickup Truck-Security	Personnel truck- 4
	Personnel truck-6	Utility Van
	Crew Bus-"C" & "D"	
GROUNDSIDE:		
TERMINAL:	Passenger Transport Tram-4	Passenger Transport Tram-6
	Currency Exchange Wagon	Restroom Service Van
	Lowboy Turf truck	Terminal Operations Flatbed
FRONTSIDE:	Security Bike	Security Chariot
	Meter Reader	Security Truck
	Utility Staff Van	Staff Car
	Parking lot Shuttle-	Parking lot Bus
	Car/Hotel Shuttle	Rental Car/Hotel Bus

Our approach is to provide public education material on how to improve the health of the Bay-Delta ecosystem to (a) multiple Bay-Delta airports for distribution (b) San Francisco's International Auto Shows for distribution and (c) through a "No-tailpipe Web site. This combination of public education venues is very powerful. This public education program is part of our implementation of an airport electric vehicle (EV) Education Center at the restricted use airfield in Alameda's recently closed Naval Air Station . The public education message will be the potential elimination of liquid, air and noise pollution at Bay-Delta airports.

Impact: The Airport Campaign, International Exhibition and No-Tailpipe Website could reach approximately 2,000,000 potential members of the public, over the two year period.

The Alameda Airport Center and it's eleven (11) Bay/Delta satellite airports would work together to educate the public about how clean EV's are and why they are better for the water and air supply. Resources for the overall education project would be supplied by the Air Quality Management Districts, the Alameda Bureau of Electricity, U.S. Environmental Protection Agency, & CALFED.

Phase I ('November 98- September 99) first implements the Bay/Delta airport education process at the (a) San Francisco International Auto *Show "EV Spectrum"*. Approximately 300,000 visitors are expected annually. This projects Education Chairperson is EPA's Alice Tobriner. Her methods include an Education Center for Airports/airlines and Public Education Outreach.

In addition, through 12 months of demonstrations and educational efforts, we have targeted all eleven local airports to be educated on the project and they intern provide (b) the printed Bay-Delta ecosystem material describing the vehicle pollution problem and airport's solutions. This total potential coverage is estimated at between 600,000 to 1,000,000 people annually.

The (c) *"No-Tailpipe Website"* will be available to the public to learn about how vehicle gasoline and diesel pollution, MTBE's, coolants, oil and filter contamination, noise and air pollution can be reduced. Public access is estimated at 100,000 to 300,000 annually.

Phase II (October 99- November 00) is the follow through stage and will duplicate Phase I and include the (a) '99 San Francisco International Auto Show and (b) a continuation of the distribution of the airport public brochure program and (c) the "No-tailpipe" Website.

CALFED should fund part of this project because it will positively impact many of the people who go through the key Bay/Delta airports and who attend the San Francisco International Auto Shows. The total project cost is $100,000 for the three tier program, repeated for two years, and the impact is estimated at approximately 2,000,000 or more environmental education exposures over a two year period.

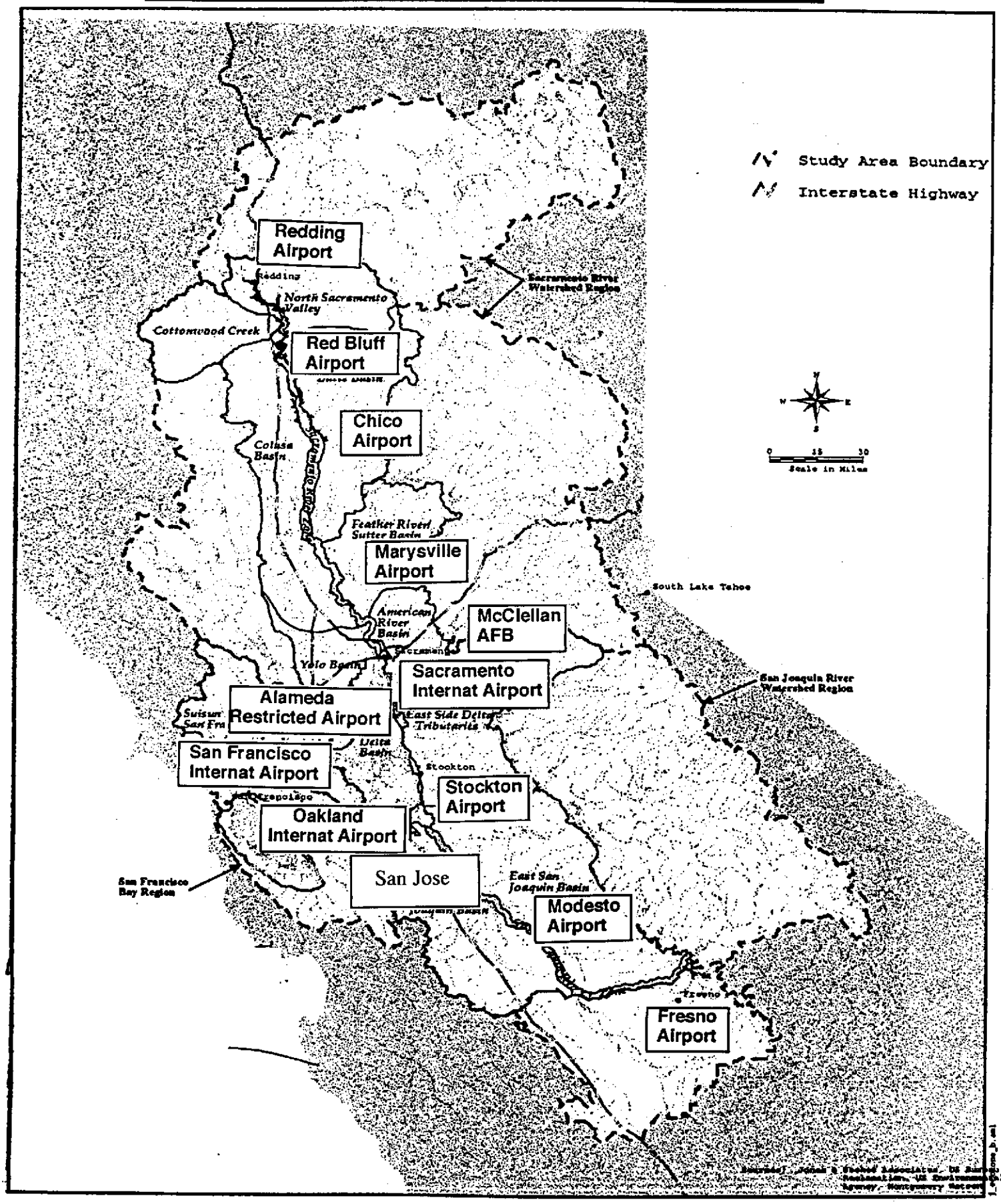
Criteria: This education program compliments existing programs, has participation of City, Regional and Federal organizations, is a public/private partnership, contributes through a comprehensive and realistic education plan, reduces air, water and noise pollution. The *"No-tailpipe , No-liquids"* and *"No-noise"* message is easy for the public to understand and appreciate. The conversion of 11 airports to electric provide on-going impact of natural resources and ecosystem restoration. A study of two airports showed:

	Particulates	Hydrocarbones	Nox
Current level	92,136	452,294	652,710
Levels with EVs	25,640	116,740	197,644
Percent reduction	**72%**	**74%**	**70%**

Qualifications: The Alameda Bureau of Electricity is qualified to run such a Electric Vehicle Education Project due to their 110 years evolving into a fully integrated municipal electric utility. Alameda understands the importance of water and as an island is surrounded by the precious liquid. Alameda's focus on electric vehicles is for the protection of the water, air and energy. The Bureau is experienced in education of the public, documentation of technical projects, and has good ongoing relationships with other Bay/Delta, Regional & Federal environmental organizations.

Attachment A
Bay/Delta Airport EV Project

GEOGRAPHIC SCOPE OF BAY/DELTA AIRPORT PROJECT



I —0 1 2 3 5 4

I-012354

III. Bay-Delta Airports - Electric Vehicle Education Project

July 2nd, 1998

Applicant: **Alameda Bureau of Electricity**
2000 Grand Street
Alameda, CA 94501

Telephone number: 510-748-3944 Fax **number: 510-748-3956**

Technical and Financial Contact Person:
Jim Baak, EV Program Coordinator

A 110 year old Municipal Electric Utility
Tax Status: Exempt

Tax identification Number: 94-2951628

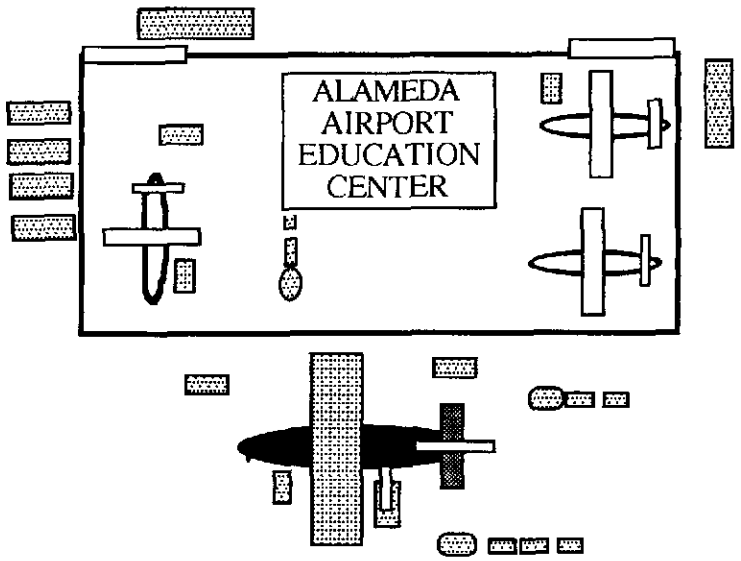
Planned Participants and Collaborators in project:

City of Alameda, Bureau of Electricity
U.S. Environmental Protection Agency
Air Quality Management Districts in Northern Cal
Airports: Redding, Red Bluff, Chico, Marysville, McClellan AFB, Sacramento International, Alameda San Francisco International, Oakland , San Jose International. Stockton, Modesto and Fresno.
Synergy EV Inc.
Edison EV, Inc.
Pacific Gas & Electric

IV. PROJECT DESCRIPTION

The project description is to develop an electric vehicle public education program and expose over 1,000,000 people annually to the program through an Airport Showcase Project. This will be part of an airport electric vehicle Education Center at an airfield hangar near the restricted use airfield at Alameda. This center will be operated by the Alameda Bureau of Electricity or it's agent to demonstrate how an all-electric passenger gate and terminal can efficiently function and eliminate harmful air and water pollution.

The Education Center hangar will be leased from the City of Alameda and it will house aircraft, including a 737 and historic wabirds. In addition, over 20 airport electric vehicles will be purchased and operated in support of the showcase aircraft gate. The Education Center will have a charter to educate the Public about Environmental issues focused at improving the health of the Bay-Delta ecosystem



The hanger is a working airport gate and all aircraft, including the 737, are serviced by electric vehicles. Product tests and training are done here for airport and air base operators from the Bay/Delta, California and Anerica.

The Education Center will focus on both Public and Industry training. EV Manufacturers will have offices to support the Ed Center. Airport staff will show visitors how the all electric airport works, on an appointment only basis. The Bay Delta satellite airports will be able to use the Center for their projects, training sessions and product tests. Public education programs will be designed and controlled out of this Alameda Center

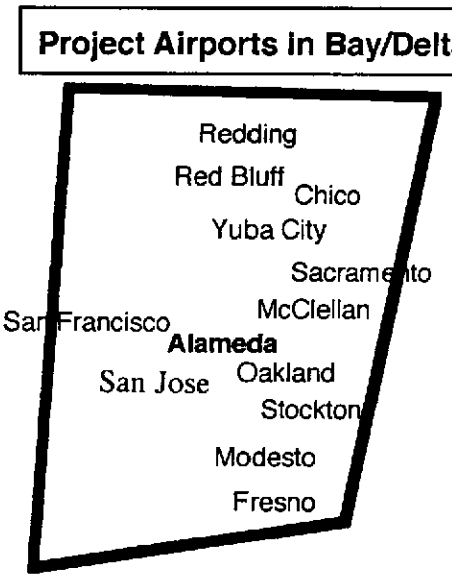
The long term projects approach is to educate the public through our mass marketing techniques, demonstrate the use of EV's at airports, educate other airport operators to this clean technology and help Bay/Delta airports to obtain their own clean vehicles for long term improvement to the health of the Bay-Delta ecosystem

We will work diligently to first convert Bay-Delta Airports and Air bases from the utilization of highly polluting and noisy internal combustion vehicles to clean, no-tailpipe, no-liquids, no-noise vehicles. The secondary mission is to educate airports and air bases throughout California to the ecological benefits of converting to electric vehicles. During and after conversion the airports role will be to report to the public why they are implementing this clean technology and the positive ecological results of such a project.

The Proposed Scope of Work includes the following twelve steps (the public education steps are highlighted).

1. Forming the Education Project Organization and Chairpeople.
2. **Preparing the Airport Showcase brochure.**
3. Attending the EPRI product focus and introducing our program to utilities.
4. **Preparing the EV Environmental Literature for distribution.**
5. Working with the 11 Bay-Delta Airports to gain their full educational support.
6. Preparing the San Francisco International Auto Show material.
7. **Preparing the environmental information for the "No-tailpipe" Website**
8. Developing the Airport Education Center and it's Public and Industry education.
9. **Working the San Francisco International Auto Show with handouts.**
10. Administering the Education Center and Satellite operations
11. **Assisting Airports to educate the Public on the Project.**
12. **Monitoring the number of public reached by our program.**

The geographic boundaries include airports in the Bay/Delta region. The one year program is divided in two, 1 year phases and will positively impact the Bay-Delta airports of Redding, Red Bluff, Chico, Yuba City, McClellan AFB, Sacramento International, Alameda restricted-use, San Francisco International, Oakland , San Jose International, Stockton, Modesto and Fresno.



The twelve Bay/Delta airports to be involved in this program are shown on the layout of Northern California. This airport group covers the Watershed, North and South Delta area

Benefits: The six pollution problems; (a) gasoline/diesel leakage, (b) MTBE's, (c) radiator coolant, (d) oil and fuel filters and (e) fertilizer use reduction, and (f) air and noise pollution are greatly minimized by the use of the clean airport electric vehicles. The reason, **the airport vehicles listed below need no gasoline, diesel, MTBE's, coolant, oil, or filters or tailpipes to be utilized at hundreds of Bay-Delta airport gates. The potential number of vehicles is discussed.**

Number of vehicles: It is realistic to consider replacing gas and diesel vehicles at airports with electric "no-tailpipe" vehicles. The chart below shows the number of identified airport vehicle applications that could be electric and the number in each of the four categories. Thirty applications have been identified. When considering there are 189 gates at the eleven airports targeted, the impact of conversion can be significant.

Potential Airport Electric Vehicle Applications

AIRSIDE:		GROUNDSIDE	
TARMAC:	OPERATIONS:	TERMINALS	FRONTSIDE
10	**6**	**5**	**9**
Synergy EV, Inc. *Airport Electrification-4/97*			

Background & Reasoning: The three attached charts **Airport Impact** (attachment B) **Impact Measurement** (attachment C) and **EV Impact Estimate (attachment D)** , calculate the amount of pollution that could be reduced by the Alameda Bay-Delta Airport Showcase project. The chart below summarizes the positive impact of those reductions:

Estimates indicate:	Annual Gallons fuel	coolant	oil	Units vehicles
potential reduction:	**1,883,961**	**10,185**	**4,420**	**1,782**

Improved Water Quality and it's related public education in the Bay/Delta region will be accomplished by reducing fuel storage leakage and the petroleum impact, coolant and lubricant contamination at our airports. In addition, the agricultural antidotes will be greatly reduced due to low air pollution factors of electric vehicles. The five pollution elements that will be included in the education are defined and the Impact estimated.

1. Gasoline & Diesel: Leakage from underground storage tanks is a serious hazard to the water supply. With gasoline and diesel containing a high level of sources of contamination, and the inability to effectively clean polluted water to drinking level standards, an enormous amount of money in clean up costs can be avoided. **The Bay/Delta Airport Project could reduce by an estimated 1,888,961 gallons of diesel and gasoline fuel needed to run practical airport support vehicles.**

2. MTBE's: Petroleum is made up of over 230 individual compounds and a high number of these present a potential to serious health risk for the world's population. Two of the most potentially dangerous compounds are benzene, an known carcinogen and methyl tertiary butyl ether (MTBE) which is being studied as a major source of water pollution with serious health affects. MTBE is added as an oxygenate to decrease harmful emissions and has been used in the US since 1979 when ARCO first added it to their gasoline stock and continues to be used in the "new" reformulated gasoline. **It is estimated that 48% of the fuel required for airport support is gasoline and almost one million annual gallons with MTBE's could be eliminated in the Bay/Delta area.**

3. Coolant Contamination: Electric Vehicles do not have the radiators with coolant that need to be drained and serviced on a routine basis. The servicing adds the potential for groundwater contamination from spillage or illegal dumping. **In the Bay/Delta Airport Project it is estimated that 10,185 gallons of coolants could be eliminated.**

4. Oil & Fuel Filters: The same lack of servicing pertains to oil, and oil/fuel filters. With EVs having none of these, the potential for illegal or accidental spillage is eliminated. The capacity savings can be calculated: **The 12 airport Bay /Delta project could reduce 4,420 gallons of oil requirement.**

5. Air Pollution repair with fertilizers: This chemical air pollution caused from mobile sources damages and weakens farm crops causing farmers to increase the use of fertilizers and pesticides that eventually pollute the groundwater.

Since there is the potential of replacing over 1750 internal combustion vehicles at the twelve Bay/Delta airports the reduction of Particulates, Hydrocarbones and Nox could be significant. The chart in the Executive Summary showed the results of studies at two eastern urban airports show the pounds per year of these contaminants have **been reduced by over 70% when electric vehicles replace internal combustion.**

Conclusions: In addition to the tremendous public education value of the Airport Project there is potential for real water and air pollution reduction. The attachments **B, C & D** illustrate the estimated potential pollution quantities eliminated annually. This project could result in major improvements by demonstrating, educating and assisting our twelve Bay/Delta Airports to utilize clean EV airport technology.

Assumptions: In order to estimate the pollution reductions of fuel, coolant, and oil, three assumptions /conclusions needed to be made:

1. What are the types and number of electric vehicles used at airports. This was provided from experience of Synergy EV and the Alameda Bureau of Electricity.

2. What types of vehicles can the electric's replace and how much fuel, coolant and oil does that process replace. This was an estimate based upon the knowledge of airport airside and tarmac support equipment.

3. If averages can be reached per airport and airport gate then each of the twelve Bay/Delta facilities pollution reduction can be projected.

The **Background & Ecological/Technical Justification** is sound because it is simple. In most ways, an airport is the most ideal electric vehicle application because the distances are short, speeds slow, routes are consistent and there is a great deal of idling and waiting time. Existing Tarmac vehicles are not regulated for clean emissions and are the dirtiest vehicles in use. This ideal situation is not a Bay Area phenomenon, but similar throughout the World.

European example: Only 5% of the 41,000 service vehicles now operating at the major U.S. airports are electric, yet 30% of those in European airports are electric. Studies in two urban airports show the pounds per year of pollution measurements as follows:

Potential Reductions

	Particulates	Hydrocarbones	Nox	Liquid fuel	MBTE	coolants	oil
Current level	92,136	452,294	652,710	100%	50%	100%	100%
Levels with EVs	25,640	116,740	197,644	0	0	0	0
Percent reduction	-72%	-74%	-70%	-100%	- 50%	-100%	-100%

The Monitoring & Data Evaluation insures that each educational program is monitored for performance including number of people contacted. A survey card will be designed and handed out for feedback. These reports will be available to all Bay/Delta airports.

Gate information will be ratified and the vehicle emissions and liquids will be checked and documented to determine the exact reduction on water and air pollution. Comparisons will be made to IC airport vehicles located at all eleven Bay/Delta airports.

Implementation is realistic: The Public Education is feasible because the San Francisco International Auto Show has been booked, the Web site company is located and the airports want to cooperate with us. As far as the overall Airport Showcase is concerned the equipment is capable of doing the job, it is less expensive to operate, the airport operations management need to solve a pollution problem and Air Quality Management Districts want to assist the purchases of airport EV projects. Capability, interest and financial assistance are key elements to any project. The end result is that water and air quality are improved.

Airport management is very interested in electric vehicle for groundside and tarmac support. The aircraft are under great scrutiny from a pollution standpoint yet the ground vehicle solution is far less expensive to implement. The incentive is there if the understanding is available.

Each Satellite Airport will have one of their administrators on the Peer Review Committee to make suggestions on how the project can be improved. Each Bay/Delta Airport will share in the results of the study.

Estimated Bay/Delta Airport Impact Attachment B

An estimated number of vehicles per gate allows the forecast of the pollutant impact on a mix of Bay/Delta airports. Larger airports (A) will tend to average more vehicles per facility and per gate and very small airports (C) will have less than the average. This is only a guide to the potential impact of IC vehicle replacement with proper EV technology.

ESTIMATES:	Fuel gallons	Coolant Gallons	Oil Quarts	
Annual volumes reduced per airport	8,112	53.0	300.0	**PLUS:**
Annual volumes reduced per airport gate:	9,453	48.1	220.5	

Airport Facilities	Size Code	Gates Today	Average Potential Impact Description: Vehicles replaced	Fuel gallons	Coolant gallons	Oil quarts
Redding	(B)	3	26	27,018	149	741
Red Bluff	(C)	1	17	17,565	101	520
Chico	(C)	2	26	27,018	149	741
Marysville	(C)	1	17	17,565	101	520
McClellan AFB (no combat)	(A)	1	17	17,565	101	520
Sacramento Int	(A)	28	258	272,796	1,397	6,474
Alameda Center	(C)	1	17	17,565	101	520
San Francisco	(A)	90	810	858,882	4,850	2,284
Oakland	(A)	49	445	471,309	2,405	1,380
Stockton	(B)	5	53	55,377	293	1,410
Modesto	(C)	1	17	17,565	101	520
Fresno	(B)	8	80	83,736	437	2,060

Total Airports in Bay/Delta Impact area: **12**
Estimated Total Gates at Bay/Delta Impact area Airports: **189** (no combat military gates)
WATER POLLUTION:
Estimated annual gallons of FUEL reduced: **1,883,961** Gasoline: **904,300** Diesel: **979,661**
Percentage of fuel with MTBE's: **48%**
Estimated annual gallons of Radiator Coolant reduction: **10,185**
Estimated annual Quarts of motor oil reduction: **17,690**

Air Pollution : Estimated IC vehicles that could be replaced with electric: **1782**

Percent reduction of air pollution based upon IC vehicles replaced with electric	Particulates	Hydrocarbons	Nox
	-72%	**-74%**	**-70%**

Size Code: A = 25 gates +, B= 3-8 gates, C = 1 main gate

IMPACT MEASUREMENT

Attachment C

Estimated pollutant quantities eliminated by the use of electric airport vehicles

This table estimates the reduction in pollutants per type of electric vehicle by measuring what pollutants are normally eliminated with vehicles that have no fuel, MTBE's, coolant or oil. The vehicles listed are those electric vehicles that will be demonstrated at the Airport Demonstration Center and ones that would be viable for the 11 Satellite Airports.

Vehicle type	units per gate/airpt		Fuel gals per unit	MTBE's present	Radiator coolant	Oil qrts
Maintenance Chariot	2	G	10 gas	yes	2 gal	3
Meter Reader	3	A	12 gas	yes	2 gal	3
Personnel 4 Truck	1/5	G	10 gas	yes	2 gal	3
Personnel 6 Truck	2/3	G	10 gas	yes	2 gal	3
Restroom Svc. Van	1/12	G	10 gas	yes	2 gal	3
Lowboy Truck	1/2	G	10 gas	yes	2 gal	3
Flatbed Truck	2	G	20 gas	yes	6 gal	5
Tarmac Delivery	1	G	20 gas	yes	8 gal	7
Tarmac Sweeper	1/6	G	20 gas	yes	7 gal	6
Retro-Tug	1	G	20 dsl	no	6 gal	7
Aircraft Tug	1/2	G	20 dsl	no	6 gal	7
Baggage Tug	2	G	18 dsl	no	6 gal	7
Retro-Pullback	1/6	G	22 dsl	no	9 gal	9
Retro-Baggage Ldr	1	G	15 gas	yes	7 gal	8
Retro-Staircase	1	G	20 gas	yes	7 gal	8
Retro-Food Service	1/3	G	25 gas	yes	9 gal	9
Airport Van	2	A	20 gas	yes	8 gal	7
Staff Car	1	A	20 gas	yes	7 gal	6
Retro-Pickup	5	A	20 gas	yes	8 gal	7
Frontside Shuttle	1/3	G	40 dsl	no	12 gal	10
Crew Bus	1/6	G	45 dsl	no	12 gal	10

Note: Unit quantities are estimated by two factors. First the number of units per airport (A) and second the number of units per gate (G) at the Airport. Example: if there are normally 1 vehicle for every 2 gates it will be expressed as 1/2 G.

EV IMPACT ESTIMATE — Attachment D

Estimated pollutant quantities potentially eliminated annually by the use of electric airport vehicles

This table estimates the reduction in pollutants per type of electric vehicle by measuring what pollutants are normally eliminated with vehicles that have no fuel, MTBE's, coolant or oil. The vehicles listed are those electric vehicles that will be demonstrated at the Airport Demonstration Center and ones that would be viable for the 11 Satellite Airports.

Vehicle type	units per gate/airpt		Fuel gal per unit	MTBE's present	Per Gate annual FUEL	Radiator coolant	Oil qts	Per Gate annual COOLANT	OIL
PER GATE:									
Maintenance Chariot	1	G	10 gas	yes	520	2 gal	3	2.0	12.0
Personnel 4 Truck	1/5	G	10 gas	yes	104	2 gal	3	.4	2.4
Personnel 6 Truck	1/3	G	10 gas	yes	104	2 gal	3	.6	4.0
Restroom Svc. Van	1/12	G	10 gas	yes	43	2 gal	3	.3	1.0
Lowboy Truck	1/2	G	10 gas	yes	260	2 gal	3	1.0	6.0
Flatbed Truck	1	G	20 gas	yes	1040	6 gal	5	6.0	20.0
Tarmac Delivery	1	G	20 gas	yes	1040	8 gal	7	8.0	28.0
Tarmac Sweeper	1/6	G	20 gas	yes	173	7 gal	6	1.1	4.0
Retro-Baggage Ldr	1	G	15 gas	yes	780	7 gal	8	7.0	32.0
Retro-Staircase	1/10	G	20 gas	yes	104	7 gal	8	.7	3.2
Retro-Food Service	1/3	G	25 gas	yes	433	9 gal	9	.3	12.0
total annual per gate					**4,601G** gallons			**27.4** gallons	**124.6** quarts
Frontside Shuttle	1/3	G	40 dsl	no	1386D	12 gal	10	4.0	13.3 Crew
Bus	1/6	G	45 dsl	no	780D	12 gal	10	.2	6.6
Retro-Tug	1	G	20 dsl	no	1040D	6 gal	7	6.0	28.0
Aircraft Tug	1/2	G	20 dsl	no	520D	6 gal	7	3.0	14.0
Baggage Tug	1	G	18 dsl	no	936D	6 gal	7	6.0	28.0
Retro-Pullback	1/6	G	22 dsl	no	190D	9 gal	9	1.5	6.0
total annual per gate					**4,852D** gallons			**20.7** gallons	**95.9** quarts
PER AIRPORT									
Meter Reader	3	A	12 gas	yes	1872	2 gal	3	6.0	54.0
Airport Van	2	A	20 gas	yes	2080	8 gal	7	16.0	84.0
Staff Car	1	A	20 gas	yes	1040	7 gal	6	7.0	36.0
Retro-Pickup	3	A	20 gas	yes	3120	8 gal	7	24.0	126.0
total annual per airport					**8,112G** gallons			**53.0** gallons	**300.0** quarts

Note: Vehicle Unit quantities are estimated by two factors. Four of the vehicle types are based on units per airport (A) and seventeen vehicle types on the number of units per gate (G) at the airport. Example: if there is normally 1 vehicle for every 2 gates it will be expressed as 1/2 G.

Formula estimate: **Fuel** = units per gate/airport x gallons x 52/104 fillups. **Coolant** = units per gate/airport x qal of coolant (1 change) , **Oil** = units per gate/airport x qts x 4 or 6 changes a year

V. Costs

The Airport Showcase, three year project, is budgeted at $1,500,000. The Public Education section of the program will require $100,000 over the next two years. The first year is $53,000 and the second year is $47,000.

Cost Breakdown Table-Airport Showcase Project
CAL FED Step I: TOTAL EDUCATION REQUEST = $100,000 (7% of Project)

Project Scope of Work	Direct Salary & Bene Alameda	Overhead Labor (Fee)	Material & Acquisition Contracts	Misc. Direct Costs	Total Cost
Develop the Public -WEB site	**2**	**20**		**2**	**24K**
Present the SF Auto Show	**2**	**22**	**2**	**4**	**30K**
Develop/Print Education brochures	**2**	**11**	**7**	**2**	**22K**
Do Airport Distribution of material	**2**	**15**			**17K**
Provide the Demos-Satellite Group	**3**	**4**			**7K**
Total 2 years costs	**11**	**72**	**9**	**8**	**100K**

Budget Spread

BAY-DELTA AIRPORT EV EDUCATION PROJECT
BUDGET USAGE In 1,000's of dollars

Elements	Phase I: Years 1 & 2 1998 Step I	1999 II	TOTAL
Education & Training			
Public -WEB	14	10	24
SF Auto Show	14	16	30
Education brochures	15	7	22
Airport Distribution	8	9	17
Demos-Satellite Group	2	5	7
Total	**53**	**47**	**100**

Schedule Milestones for Step I include the following

Key actions	Date	
The highlighted action items are directly related to the Public Education project.		
Developing the General Education Brochures with EPA	June	1998
Educating the EPRI Utilities	August	1998
Running the San Francisco International Auto Show	**November**	**1998**
Opening the 'No-tailpipe Web Site	**December**	**1998**
Starting Environmental Brochure Handout at 1st airport	**January**	**1999**
Opening the Airport Demonstration Hanger	March	1999
Opening the Airport Education Center	**May**	**1999**
Holding Airport Industry Conference with satellites	**August**	**1999**
Start Seminar Series on Airport EV Funding	September	1999

This schedule assumes the funding is available by the 1st of October, 1998.

The Third Party Impacts are minimum. Alameda Bureau has a space reserved in the San Francisco International Auto Show, "EV Spectrum". We have located the company that will do the Airport Showcase Website. The airports have shown the interest in wanting to participate with public education and in the use of electric vehicles. Other agencies have expressed an interest in the project . We have written support from:

- o U.S. Environmental Protection Agency
- o U.S. Department of Energy
- o Bay Area Air Quality Management District
- o Union of Concerned Scientists

VI. Applicant Qualifications

Alameda Bureau of Electricity is working with Synergy EV, Inc. The U.S. Environmental Protection Agency and Airport Operations, Inc. on the Bay/Delta **Airport Demonstration Showcase project.** The combined qualifications are unparalleled for such a project.

The **Alameda Bureau** of Electricity: (see attached background)

1. Has **110 years of experience** in electric energy projects.
2. Are focused on Electric Vehicle (**EV**) **Projects** for their Bay Area Island of Alameda. Will assign a full time Project Leader to the Airport Showcase.
3. Have returned **$62 million dollars** to Alameda City Fund.
4. Have the **technical staff** for electricity based projects, including engineering, project management, data collection & infrastructure

Synergy EV has EV experience as a successful:

1. **Raiser** of $325,000 for an Airport Electrification Project. (1996: Ontario Airport-SAQMD Tarmac retrofit)
2. **Winner** of California Air Resources Board (CARB) EV Contract for Airport Electrification (1997: Synergy EV, Inc. & Accurex Environmental as partners on CARB contract #95-112)
3. **Sole Source Contractor**" of electric vehicles and their support for the California State Parks and Recreation Department.
4. **Consulting staff** that have delivered $103,000,000 of electric vehicles world-wide. Synergy will have a Project Manager
5. **Winner** of Los Angeles Department of Water & Power electric bus program for consulting, training and operations.

Airport Operations specializes in airport management:

1. They operate the "Eagle Field" airport project in Los Banos.
2. They are the lead representative for the Historic use of Alameda Field.
3. Their staff have thirty years of experience in airport operations. They will have a part time Project Manager.

City of
ALAMEDA
Bureau of
ELECTRICITY

May 28, 1997

Thomas C. Addison,
Environmental Planner
Bay Area Air Quality Management District
939 Ellis Street
San Francisco, CA 94109

Dear Tom:

This letter is to confirm the City of Alameda Bureau of Electricity's sponsorship of the Alameda Airport Electric Vehicle (EV) Demonstration Center Project including the support of the EV Fleet Loaner Program.

In its proposed fiscal year 1998 budget, the Bureau has targeted $25,000 in matching funds for this project. In addition, the Bureau intends to provide and install two charging stations accessible to the public in the Demonstration Center visitors parking area and to install the charging equipment for the demonstration vehicles within the facility if funds are awarded for this purpose. Availability of these funds is subject to the final approval of the Public Utilities Board.

If you have any questions regarding this information, please contact Jim Baak at (510) 748-3944.

Sincerely,

Juelle-Ann Boyer
Acting General Manager

cc: Jim Baak
Bob Boshoven

J:\SHARE\EB\DOC\ELECTVEH97GRANT3.LTR

2000 Grand Street • P.O. Box H • Alameda, California 94501-0263 • 510-748-3901 • FAX 510748-3975

City of ALAMEDA Bureau of ELECTRICITY

AN INTRODUCTION TO THE BUREAU OF ELECTRICITY

At 110 years of operation, the Bureau is the oldest municipal utility in California and is among the oldest in the nation, either public or private.

In 1882, Thomas Edison proved the feasibility of central station electric service. Three years later, the Jenney Electric Company, under contract with the City of Alameda, installed a 90-kilowatt generating plant and 13 masts at various locations for street lighting. The City's Board of Trustees exercised its option to purchase the plant upon assurance of its successful operation in 1887.

In 1913, the "Alameda Electric Lamp Post" served as a model for the nation's urban street lighting systems. Alameda was known as the best lighted city in the Bay Area, having more and better lamp posts than any other city per unit of population while its customers benefitted from lower rates

Since 1914, the Bureau of Electricity has returned over $62.6 million to the City General Fund. During the 1996 Fiscal Year, dividends to the City, stemming from an approximate 31,000 customer account base, was $3,020,000.

The Bureau's rates consistently have been competitive with those in surrounding communities. A typical residential bill in Alameda is approximately 5.0 percent lower than in Oakland. Most commercial and industrial bills are also significantly less.

In 1919, the price of oil made the cost of generation in the small City-owned plant excessive, so the purchase of power from the Great Western Power Company was begun. The Bureau has not generated its own power since 1924. In the fiscal year ending June 30, 1996, approximately 70 percent of the Bureau's electric sales revenues were used to purchase wholesale electricity. The Bureau has implemented a successful, ongoing program to plan and acquire electric generation sources that are economical, stable in long-term costs, and environmentally benign.

Since 1982, the Bureau has taken delivery of low-cost hydroelectric power from the Central Valley Project of the Western Area Power Administration, a marketing arm of the U.S. Department of Energy. Through the Northern California Power Agency (NCPA), a joint powers agency comprised of the Bureau and 14 other Northern California municipal entities, Alameda has investments in geothermal, combustion turbine, and hydroelectric generating facilities.

In accordance with the City Charter, four Commissioners appointed by the Mayor with the concurrence of the City Council and the City Manager (as an ex-officio member) form the Public Utilities Board which establishes policy, approves major purchases, and provides for local control for one of Alameda's largest businesses.

06/04/97 - MFM

VII. Compliance

The City of Alameda, Bureau of Electricity has reviewed the project and have provided the attached approval Resolution # 4331.

A letter from the acting General Manager discusses the Bureau's interest in the Airport Showcase project.

The parallel and companion Grant Proposals will be generated to other agencies in the next three months..

The Bureau Attorney is reviewing the required Terms and Conditions and forms.

CITY OF ALAMEDA
BUREAU OF ELECTRICITY

RESOLUTION NO. 4331

AUTHORIZING SUBMITTAL OF AN APPLICATION FOR CALFED CATEGORY III FUNDING FOR THE AIRPORT EV DEMONSTRATION CENTER PROJECT

WHEREAS, the City of Alameda Bureau of Electricity (Bureau) is a supporter of clean air and clean water and wishes to take action to enhance air and water quality affecting the Bay-Delta by promoting the use of electric vehicles; and

WHEREAS, the Bureau wishes to encourage the development of an electric vehicle industry in Alameda; and

WHEREAS, the Bureau, as a public agency, is eligible to submit projects or programs for the CALFED Bay-Delta Program Restoration Coordination Program Category III Funding; and

WHEREAS, the Bureau has identified the Airport Electric Vehicle Demonstration Center as a project eligible for these funds.

NOW, THEREFORE, BE IT RESOLVED that the Public Utilities Board hereby authorizes the Acting General Manager of the City of Alameda Bureau of Electricity to submit an application for Category III funding to the CALFED Bay-Delta Program Restoration Coordination Program for the Airport Electric Vehicle Demonstration Center Project and to execute a funding agreement with the CALFED for this project if the application is approved for funding.

I, the undersigned, hereby certify that the foregoing resolution was regularly introduced and adopted by the Public Utilities Board of the City of Alameda in regular meeting assembled on the 21st day of July 1997, by the following vote to-wit:

AYES: Commissioners Baldassarre, Flint, Hanna, Russum, and President Hansen
NOES: None
ABSENT: None

IN WITNESS WHEREOF, I have set my hand this 22nd day of July 1997.

Dorothea J. Duncan
Secretary Pro-Tem

JEB:DD
G:\USERS\ALLSHARE\RES4331

Attachment E

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105-3901

July 1, 1998

James Baak, Coordinator
Electric Vehicle Program, City of Alameda
2000 Grand Street
Alameda, CA 94501

Dear Mr Baak,

At the strong recommendation of Alice Tobriner, Chair of the Education Cor mittee of the "Alameda Airport EV Showcase," I wish to express my whole-hearted suppc t of this Project. As the media has often reported, the general public is still not convinced of tl : value of alternative fuels and alternative fuel vehicles in transportation. Even airport managers a : reluctant to accept the potential economic advantages which come with putting electric vehicles nto both "airside" and "landside" operations. All of this is aside from the contribution EVs can nake in reducing air, water and ground pollution.

The educational approach, as stated in this project, will provide not only sem iars and classes at the airports but an EV hub which uses Alameda's recently closed Naval Air S :ation to present over 30 airport electric vehicles at work. This activity will be in conjunction vith a permanently parked 737 aircraft requiring "servicing" at a simulated demonstration gate.

Hence, this project allows for the experiential component within which to ad ress three groups:

- Through educational intervention at the airports and air bases, and in Airport EV Showcase-sponsored programs, *the public* will come to experience a d then understand the ecological benefits of converting to electric vehicles in all their tra isportation choices;

- Through demonstrations and on-site opportunities allowing for good usiness decisions, *administrators* at airports and air bases in the Bay-Delta area from R ding to Fresno will be asisted in making the move from highly polluting and noisy interna combustion vehicles to cleaner, more environmentally friendly vehicles (hence les polluting at all levels);

- Through the hands-on reality-based activities envisioned in the Alame da EV Showcase, *airport managers and their personnel at every level* will be introduce l at a central location in Alameda to all types of airport EVs--their specialized use, their maintenance, their costs and fiscal pay-offs--and their related infrastructures.

In conclusion, the Environmental Protection Agency, Region IX, commends /ou for your efforts in this matter and wishes you well in your future endeavors.

Sincerely yours,

Paula Bass

for Katherine Taylor
Senior Associate for Pe ticides and Toxics

I-012372

Clean Cities
U.S. Department of Energy

February 5 1998

James Baak
City of Alameda Bureau of Electricity
2000 Grand Street
P.O. Box H
Alameda, CA 94501-0263

Dear Mr. Baak:

On behalf of the U.S. Department of Energy Clean Cities Program I'm writing in support of Alameda's proposed EV Demonstration Project. Through the Energy Policy Act of 1992, the U.S. Congress directed the Department of Energy (DOE) to improve the nation's economy, environment, and national security by reducing our dependence on imported oil. Since its inception in September of 1994, DOE's Clean Cities Program has been helping communities develop voluntary partnerships to achieve these goals. Right now, in 61 coalitions around the country, stakeholders from the public and private sectors are working together to promote the use of alternative fuels and alternative fuel vehicles through infrastructure development, vehicle deployment, and public awareness campaigns. Twelve of these coalitions are located in California.

As stakeholders in the East Bay Clean Cities Coalition, the City of Alameda, and the Bureau of Electricity in particular, have been leaders in community based efforts to promote alternative fuels. The Bureau's EV Model City Plan exemplifies the mission and goals of the Clean Cities Program. Extending this effort to target airport infrastructure and fleets is also in line with DOE's current focus. Airports contribute a significant amount of pollution as a result of both air and ground traffic. Fortunately, airports are also ideal targets for numerous pollution mitigation efforts because of the large numbers of fleets that are located there. The Clean Cities Program has been pursuing efforts at airports around the country to increase the use of alternative fuels in airport fleets, ranging from taxi cabs to shuttle buses, as a means of reducing pollution and reducing our dependence on petroleum. The Alameda Airport EV Demonstration Project will provide an ideal showcase for airport fleets to test and prove the viability of electric technologies for airport applications.

As always, DOE appreciates your dedication and commitment to cleaning our environment, reducing our nation's dependence on imported fossil fuels, and strengthening local economies. And we look forward to continued partnership in the future.

Sincerely,

Ernest Rios
U.S. Department of Energy
Clean Cities Program

BAY AREA AIR QUALITY MANAGEMENT DISTRICT

Attachment G

November 13, 1997

James Baak
Alameda Bureau of Electricity
P.O. Box H
Alameda, CA 94501-0263

Dear Jim:

I recently reviewed the Alameda Bureau of Electricity's CALFED proposal to implement an airport electric vehicle (EV) demonstration center. I hope you are successful in bringing this proposal to fruition.

The Bay Air Quality Management District believes that airports do indeed represent an excellent potential arena for electric vehicles (EVs). Airports are significant pollution sources, and are under increasing pressure to reduce emissions as a result of both federal and state regulations. I share your belief that internal-combustion ground-support equipment, shuttles, and other airport vehicles are excellent candidates for replacement with electric-powered vehicles.

After attending the Clean Airport Summit last month in Colorado, I believe that the single greatest obstacle to increasing the use of EVs at airports is not battery technology limitations or a shortage of quality products. It is rather a lack of knowledge about the availability and capability of today's vehicles on the part of airport managers and airline personnel. A project such as that described in your proposal that would increase EV awareness and knowledge would help us as we encourage the airports within our region to reduce their emissions.

I look forward to continuing our strong partnership with the Bureau of Electricity as we collaboratively work to bring all types of EVs to the region. Please contact me if you have questions (phone: 415/749-5109; email: taddison@baaqmd.gov).

Sincerely,

Thomas C. Addison

939 ELLIS STREET • SAN FRANCISCO, CALIFORNIA 94109 • (415) 771-6000 • FAX (415) 928-8560

UNION OF
CONCERNED
SCIENTISTS

Attachment H

December 4, 1997

Jim Baak, EV Program Coordinator
Alameda Bureau of Electricity
2000 Grand St.
P.O. Box H
Alameda, CA 94501-0263

Dear Mr. Baak:

I am writing to you in support of the Airport EV Demonstration Center of the Alamed Bureau of Electricity. This is an exciting project that will provide important benefits to the Bay Area's environment and will support sustainable economic growth.

The Union of Concerned Scientists is a nonprofit organization of scientists and other concerned citizens that works on issues of public policy where science and technology play a critical role. Our Berkeley office works particularly on issues of transportation, and our staff has concluded that electric vehicles have great environmental and energy benefits, particularly in California.

Your plan to provide a center to support, train, and demonstrate vehicles for Bay Area airports is comprehensive and necessary to help get these promising technologies implemented. Please keep me posted on the Center's progress.

Sincerely,

Jane Kelly

Jane Kelly
California Policy Coordinator

encl: "Driving Out Pollution"

California Office: 2397 Shattuck Avenue Suite 203 • Berkeley, CA 94704 • 510-843-1872 • FAX: 510-843-3785
Cambridge Headquarters: Two Brattle Square • Cambridge, MA 02238 • 617-547-5552 • FAX: 617-864-9405
Washington Office: 1616 P Street NW Suite 310 • Washington, DC 20036 • 202-332-0900 • FAX: 202-332-0905